

CLAIMS

What is claimed is:

1. A trailer locking system for securing a trailer having a door and a braking system, said braking system having a brake line configured to pneumatically interconnect a supply of compressed air to one or more air-operated brakes on said trailer, said trailer locking system comprising:

a power supply;

a brake lock device in operative communication with said braking system, said brake lock device configured to selectively place said brakes in a locked condition and prevent movement of said trailer;

a door lock device in operative communication with said door, said door lock device configured to selectively prevent the opening of said door when said door lock device is in a locked condition;

a controller unit connected to said power supply and in operative communication with said brake lock device and said door lock device, said controller unit having computer circuitry and componentry configured to control the operation of said brake lock device and said door lock device; and

a control mechanism in communication with said controller unit, said control mechanism configured to transmit operational instructions to said controller unit.

2. The system according to claim 1, wherein said brake lock device further comprises a control valve electronically connected to said controller unit and pneumatically connected to said brake line, said control valve configured to open in response to an open signal from said controller unit so as to allow compressed air from said brake line to vent and maintain said brakes in a locked condition until a close signal is received from said controller unit to close said control valve and prevent compressed air from venting to place said brakes in an unlocked condition.

3. The system according to claim 2, wherein said control valve has an inlet and an outlet selectively in fluid communication with said inlet, said inlet pneumatically connected to a brake line outlet pneumatically disposed in said brake line between said supply of compressed air and said brakes, said control valve configured to vent air from said brake line.

4. The system according to claim 3, wherein said control valve further comprises an electric motor operatively connected to a shaft slidably

disposed in said control valve to selectively open and close the communication between said inlet and said outlet.

5. The trailer locking device of claim 4, wherein said control valve further comprises one or more limiting switches to monitor and limit the movement of said shaft in said control valve, said one or more limiting switches electrically connected to said controller unit.

6. The trailer locking device of claim 2, wherein said brake lock device further comprises one or more pressure sensors operatively engaged with said control valve and electronically connected to said controller unit so as to measure the air pressure at said control valve.

7. The system according to claim 6, wherein at least one of said pressure sensors is configured to communicate with said controller unit to open said control valve when the pressure in said brake line drops below a pre-determined level and to maintain said control valve in a closed condition when the pressure in said brake line is above said pre-determined level.

8. The system according to claim 2, wherein said controller unit and said control valve are disposed in a housing.

9. The system according to claim 8, wherein said housing is located in an internal cavity of said trailer.

10. The system according to claim 1, wherein said door lock device comprises an actuator configured to operatively actuate said locking member so as to selectively lock said door, said door lock device configured to be mounted on an interior surface of said trailer, said locking member configured to prevent the opening of said door when said door lock device is in a locked position.

11. The system according to claim 10, wherein said actuator has an actuating rod releasably connected to said locking member and said actuator is releasably mounted on said interior surface of said trailer for selective disengagement of said actuator from said trailer.

12. The system according to claim 11, wherein said actuator is releasably mounted on a back plate member configured to be mounted on said interior surface of said trailer.

13. The system according to claim 10, wherein said trailer has a frame comprising one or more tubular frame members, said locking member configured to be slidably received in a receptor disposed in one of said one or more tubular frame members and cooperatively engaged therewith to prevent the opening of said door until an open command is received from said controller unit.

14. The system according to claim 13, wherein said door lock device further comprises a tubular member mounted to a back plate member,

said locking member is a sliding bolt slidably disposed in said tubular member and said receptor is a hole in said tubular frame member sized and configured to receive said sliding bolt.

15. The system according to claim 10, wherein said locking member is configured to operatively engage a receptor attached to a frame member of said trailer.

16. The system according to claim 10, wherein said actuator is an electro-mechanical linear actuator.

17. The system according to claim 1, wherein said door lock device further comprises a position switch in communication with said controller unit, said position switch configured to detect whether said door is in an open position or a closed position.

18. The system according to claim 17, wherein said position switch is a reed switch.

19. The system according to claim 1 further comprising a communication system for the transmission of signals across a wireless communication network, said communication system comprising a communication device operatively connected to said controller unit.

20. The system according to claim 19, wherein said communication device is a radio.

21. A trailer locking system for securing a trailer having a door and a braking system, said braking system having a brake line configured to pneumatically interconnect a supply of compressed air to one or more air-operated brakes on said trailer, said trailer locking system comprising:

a brake lock device in operative communication with said braking system, said brake lock device configured to selectively place said brakes in a locked condition and prevent movement of said trailer, said brake lock device having a control valve pneumatically connected to said brake line, said control valve configured to open to allow compressed air from said brake line to vent to maintain said brakes in said locked condition and to close to prevent compressed air from venting to place said brakes in an unlocked condition;

a door lock device in operative communication with said door, said door lock device having an actuator configured to operatively actuate a locking member so as to selectively lock said door, said locking member configured to prevent the opening of said door when said door lock device is in said locked position;

a controller unit connected to a power supply and in operative communication with said control valve of said brake lock device and said door lock device, said controller unit having computer circuitry and componentry configured to control the operation of said brake lock device and said door lock device; and

a control mechanism in communication with said controller unit, said control mechanism configured to transmit operational instructions to said controller unit.

22. The system according to claim 21 further comprising a communication system for the transmission of signals across a wireless communication network, said communication system comprising a communication device operatively connected to said controller unit.

23. The system according to claim 21, wherein said control valve further comprises an electric motor operatively connected to a shaft slidably disposed in said control valve to selectively open and close said control valve, said control valve configured to selectively vent air from said brake line.

24. The trailer locking device of claim 23, wherein said control valve further comprises one or more limiting switches to monitor and limit the

movement of said shaft in said control valve, said one or more limiting switches electrically connected to said controller unit.

25. The trailer locking device of claim 21, wherein said brake lock device further comprises one or more pressure sensors operatively engaged with said control valve and electronically connected to said controller unit so as to measure the air pressure at said control valve.

26. The system according to claim 25, wherein at least one of said pressure sensors is configured to communicate with said controller unit to open said control valve when the pressure in said brake line drops below a pre-determined level and to maintain said control valve in a closed condition when the pressure in said brake line is above said pre-determined level.

27. The system according to claim 21, wherein said trailer has a frame comprising one or more tubular frame members, said locking member being configured to be slidably received in a receptor disposed in one of said one or more tubular frame members and cooperatively engaged therewith to prevent the opening of said door until an open command is received from said controller unit.

28. The system according to claim 27, wherein said door lock device further comprises a tubular member mounted to a back plate member,

said locking member is a sliding bolt slidably disposed in said tubular member and said receptor is a hole in said tubular frame member sized and configured to receive said sliding bolt.

29. The system according to claim 21, wherein said actuator is an electro-mechanical linear actuator.

30. The system according to claim 21, wherein said door lock device further comprises a position switch in communication with said controller unit, said position switch configured to detect whether said door is in an open position or a closed position.

31. A trailer locking system for securing a trailer having a door and a braking system, said braking system having a brake line configured to pneumatically interconnect a supply of compressed air to one or more air-operated brakes on said trailer, said trailer having a frame comprising one or more tubular frame members, said trailer locking system comprising:

a brake lock device in operative communication with said braking system, said brake lock device configured to selectively place said brakes in a locked condition and prevent movement of said trailer, said brake lock device having a control valve pneumatically connected to said brake line and one or more pressure sensors operatively engaged with said control valve to measure

the air pressure at said control valve, said control valve configured to open to allow compressed air from said brake line to vent to maintain said brakes in said locked condition and to close to prevent compressed air from venting to place said brakes in an unlocked condition;

a door lock device in operative communication with said door, said door lock device having an actuator configured to operatively actuate a locking member so as to selectively lock said door, said locking member configured to be slidably received in a receptor disposed in one of said one or more tubular frame members and cooperatively engaged therewith to prevent the opening of said door until an open command is received from said controller unit;

a controller unit connected to a power supply and in operative communication with said control valve of said brake lock device and said door lock device, said controller unit having computer circuitry and componentry configured to control the operation of said brake lock device and said door lock device;

a control mechanism in communication with said controller unit, said control mechanism configured to transmit operational instructions to said controller unit; and

a communication system for the transmission of signals across a wireless communication network, said communication system comprising a communication device operatively connected to said controller unit.

32. The system according to claim 31, wherein at least one of said pressure sensors is configured to communicate with said controller unit to open said control valve when the pressure in said brake line drops below a pre-determined level and to maintain said control valve in a closed condition when the pressure in said brake line is above said pre-determined level.

33. The system according to claim 31, wherein said actuator is an electro-mechanical linear actuator.

34. The system according to claim 31, wherein said door lock device further comprises a position switch in communication with said controller unit, said position switch configured to detect whether said door is in an open position or a closed position.